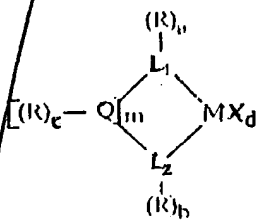
CLAIMS

1.- Catalyst component for the polymerization of alpha-olefins in solution, in suspension, in gas phase at low and high pressure and temperature or in mass at high pressures and high or low temperatures, characterised in that is defined by general formulas I or II

$$(L(R)_a)_xMX_y \qquad I$$



II

wherein:

R, equal to or different from each other, is hydrogen or a radical which contains from 1 to 20 carbon atoms; this group optionally contains heteroatoms of groups 14 to 16 of the periodic table of the elements and boron ; at least one group R contains a group $OSiR"_3$, wherein R" is selected from the group comprising: C_1-C_{20} alkyl , C_3-C_{20} cycloalkyl, C_6-C_{20} aryl, C_7-C_{20} alkenyl, C_7-C_{20} arylalkyl, C_7-C_{20} arylalkenyl or alkylaryl, linear or branched;

Q is selected from a group comprising: boron or an element from groups 14 or 16 of the periodic table, when **m** > 1, groups Q are equal to or different from each other; the free valences of every Q are filled with groups R according to the value of **c** index; two groups R optionally are united to form a ring from 5 to 8 atoms; m value range from 1 to 4;

L, equal to or different from each other, is a cyclic organic group united to M through a π bond, it contains a cyclopentadienyl ring, that optionally is fused with one or more other rings, or it is an atom from groups 15 or 16 of the periodic table;

L_1 and L_2, equal to or different from each other, have the same meaning of L;

M is a metal from groups 3, 4, 10 of the periodic table, lanthanide or actinide.

X ,equal to or different from each other, is selected from a group comprising: halogen, hydrogen, OR"', $N(R"')_2$, C_1-C_{20} alkyl or C_6-C_{20} aryl; wherein R"' is selected from the group comprising: C_1-C_{20} alkyl , C_3-C_{20} cycloalkyl, C_6-C_{20} aryl, C_7-C_{20} alkenyl, C_7-C_{20} arylalkyl, C_7-C_{20} arylalkenyl or alkylaryl, linear or branched;

x is 1 or 2, **y** is 2 or 3 in such a way that **x** + **y** = 4

d ranges from 0 to 2;

a, **b** and **c** are integers from 0 to 10, in such a way that **a** + **b** + **c** ≥ 1.

2.- Catalyst component according to claim 1 characterized in that R is selected from the group comprising: hydrogen, C_1-C_{20} alkyl , C_3-C_{20} cycloalkyl, C_6-C_{20} aryl, C_7-C_{20} alkenyl, C_7-C_{20} arylalkyl, C_7-C_{20} arylalkenyl or alkylaryl, linear or branched or a group SiR'_3 wherein R' is C_1-C_{20} alkyl , C_3-C_{20} cycloalkyl, C_6-C_{20} aryl, C_7-C_{20} alkenyl, C_7-C_{20} arylalkyl, C_7-C_{20} arylalkenyl or alkylaryl, linear or branched or $OSiR''_3$; at least one group R contains a group $OSiR''_3$, wherein R'' is selected from the group comprising: C_1-C_{20} alkyl , C_3-C_{20} cycloalkyl, C_6-C_{20} aryl, C_7-C_{20} alkenyl, C_7-C_{20} arylalkyl, C_7-C_{20} arylalkenyl or alkylaryl, linear or branched; optionally all these groups contain heteroatoms of groups 14 to 16 of the periodic table of the elements and boron.

3.- Catalyst component according to claims 1-2 characterized in that M is selected from the group comprising: Ti, Zr or Hf.

4.- Catalyst component according to claims 1-3 characterized in that the group R containing the group OSiR'' is selected from the group comprising: $-CH_2-CH_2-OSiMe_3$, $-CH_2-CH_2-CH_2-OSiMe_3$, $-CH_2-O-CH_2-OSiMe_3$, $-O-CH_2-CH_2-OSiMe_3$, $-SiMe_2-CH_2-CH_2-OSiMe_3$.

5.- Catalyst component according to claims 1-4 characterized in that in the general formula I, L is cyclopentadienyl or indenyl; M is zirconium; x is 2; y is 2; R is C_1-C_4 alkyl, wherein at least one hydrogen of one R is substituted with $OSiR''_3$ wherein R'' is selected from the group comprising: Me, Et, Pr.

6.- Catalyst component according to claims 1-4 characterized in that in the general formula II, M is zirconium; L_1 and L_2 are cyclopentadienyl or indenyl group; R is hydrogen, a C_1-C_4 alkyl wherein at least one hydrogen of one R is substituted with $OSiR''_3$ or a SiR'_2-$OSiR''_3$ group, wherein R'' is selected from the group comprising: methyl, ethyl, propyl ; $[(R)_cQ]_m$ is H_2C-CH_2, CRH-CH_2, RHC-SiR'_2, R_2C-SiR'_2 or SiRR'.

7.- Catalyst component according to claims 1-4 characterized in that in the general formula II, M is titanium; L_2 is an oxygen or a nitrogen atom; L_1 is a cyclopentadienyl, indenyl or fluorenyl ring; $[(R)_cQ]_m$ is H_2C-CH_2, CRH-CH_2, RHC-SiR'_2, R_2C-SiR'_2 or SiRR'.

8.- Solid catalyst component according to claims 1-7, characterized in that catalyst component of formula I or II is supported on a porous inorganic solid.

9.- Solid catalyst component according to claim 8 characterized in that the porous inorganic solid is selected from the group comprising: silica, alumina, silica-alumina, aluminium phosphates and mixtures thereof.

10.- Process for the preparation of a solid catalyst component comprising the following steps:

impregnation, under anhydrous conditions and inert atmosphere, of a solution of at least one catalyst component according to claims 1-7 on the supporting material at a temperature between -

20° C and 90 °C; filtration and washing with a solvent, selected from aliphatic or aromatic hydrocarbon.

11.- Process for the preparation of a solid catalyst component comprising the following steps: depositing the catalyst component according to claims 1-7 on the support, by using a solution of the compound to heterogenize; eliminating the solvent through evaporation; warming the solid residue up to temperature between 25 and 150° C.

12.- Process for the preparation of a solid catalyst component according to claims 10-11 characterized in that before step a) the catalyst component is mixed with a cocatalyst.

13.- Polymerization catalyst comprising the catalyst component according to claims 1-9 and a cocatalyst.

14.- Polymerization catalyst according to claims 13, characterized in that the cocatalyst is selected from a group comprising: alkylaluminoxane, boron compound, or mixture thereof.

15.- Process for the polymerization of alpha-olefins in solution, in suspension, in gas phase at low and high pressure and temperature or in mass at high pressures and high or low temperatures characterized by the use of a polymerization catalyst according to claims 13-14.

16.- Process for the polymerization of alpha-olefins in solution, in suspension, in gas phase at low and high pressure and temperature or in mass at high pressures and high or low temperatures according to claim 15 characterized in that the monomer is ethylene

17.- Process for the polymerization of alpha-olefins in solution, in suspension, in gas phase at low and high pressure and temperature or in mass at high pressures and high or low temperatures according to claim 15characterized in that the monomer is ethylene and the comonomer is selected from the group comprising: propylene, butene, hexene, octene and 4-methyl-1-pentene.

18.- Process for the polymerization of alpha-olefins in solution, in suspension, in gas phase at low and high pressure and temperature or in mass at high pressures and high or low temperatures according to claim 17 characterized in that the comonomer is used in proportions from 0,1 to 70% by weight of the total of the monomers.